

e-Appendix: Methods used to identify hazardous playground equipment

The inspection process at each playground consisted of:

1. General overview of the playground site;
2. Inspection of protective surfaces;
3. Analysis of playground equipment;
4. Analysis of areas of protective surfacing and no-encroachment zones;
5. Hazard analysis; and
6. Review and summarization, and assignment of hazard rating.

The condition of the site, each protective surface and each piece of play equipment was recorded on a separate form, with checklists created on the basis of the 1998 Canadian Standards Association (CSA) standards and the 1990 CSA guidelines and open space for text comments. A summary narrative was prepared for each playground that was structured around 2 questions: how severe might an injury occurring on this playground be, and, where the equipment was noncompliant, how feasible was it to achieve compliance through repair or retrofit.

Box 1 shows the dual-scale hazard rating system used by the Toronto District School Board to assess the answers to these questions. Injury severity potential was coded from “A” (least) through “D” (worst), and action required to achieve compliance was coded from “1” (none required) through “4” (removal and replacement required).

A “D” rating resulted from a combination of (a) the relation between the height of available standing surfaces and the depth of protective surface to absorb the impact from a fall, and (b) the quantity and seriousness of entanglement, entrapment, pinch point, sharp edge, protrusion and fall or impact faults identified. There was no single threshold for applying a “D” rating. The “4” rating suggested that it was impractical to retrofit the equipment to ensure compliance. Thus, a playground rated “D4” contained hazards that could result in severe injuries of a permanent nature and were impractical to correct so that the playground could achieve compliance.¹

Playground equipment rated “D4” was scheduled for removal and replacement. School board staff reviewed many playground structures with this rating to verify the accuracy of the assessment. In each case the staff agreed that retrofit

Box 1: Rating system used by the Toronto District School Board to assess playground equipment for injury risk and action required to achieve compliance with CSA standards (1998) and guidelines (1990)

Severity of injury risk

- Class A: Little or no injury should arise as a result of noncompliance
- Class B: Serious injury may result from minor areas of noncompliance
- Class C: Serious but not disabling injury may result from areas of noncompliance
- Class D: Serious and permanent injury may result from hazardous areas such that corrective action is required immediately

Action required to achieve compliance

- Rating 1: Complies with CSA standards; no action required
- Rating 2: Does not comply with CSA standards but only minor repairs required to achieve compliance
- Rating 3: Does not comply with CSA standards but does comply with CSA guidelines; difficult to retrofit to achieve full compliance with CSA standards
- Rating 4: Does not comply with either CSA standards or CSA guidelines and is impractical to retrofit to achieve compliance

Note: CSA = Canadian Standards Association.

would be more costly than outright replacement, and they therefore supported the inspector’s rating. In late June and early July of 2000 the 136 playgrounds rated “D4” were removed from schools, and the process of design, tendering and installation of replacement playgrounds was begun. Equipment and surfacing were removed and replaced in their entirety at these schools. The need for a simple replacement or top-up of surfacing did not place the school in the “D4” group. Schools that had playgrounds removed and replaced also had other outdoor environmental hazards (broken sidewalks, tripping points, drainage and ice hazards) addressed at the same time.

Reference

1. Illingworth C, Brennan P, Jay A, Al-Rawi F, Collick M. 200 injuries caused by playground equipment. *BMJ* 1975;4(5992):332-4.